**WHAT IS CLAIMED IS:**

1.    A method for compensating stressed pixels on a display device, the method comprising:

receiving a video data input for displaying a video image frame at a first frequency;

displaying a primary sub-frame representing at least a part of the video image frame, the primary sub-frame having one or more predetermined stressed pixels whose brightness being expected to be compensated; and

displaying at least one secondary sub-frame having the predetermined stressed pixels thereon with predetermined compensating brightness,

wherein the primary and secondary sub-frames are displayed sequentially at a second frequency so that the separation of the two sub-frames is undetected by a viewer.

2.    The method of claim 1 wherein the primary and secondary sub-frames are displayed with the second frequency so that an effective display frequency is equivalent to the first frequency.

3.    The method of claim 1 further comprising detecting one or more pixels in the video image frame as the stressed pixels.

4. The method of claim 3 further comprising determining compensating brightness for each of the stressed pixels.

5. The method of claim 4 further comprising:

forming the primary and secondary sub-frames based on the determined compensating brightness; and

determining the second frequency based on the determined compensating brightness.

6. The method of claim 3 wherein the determining further comprises:

providing a database supplying accumulative pixel data for one or more stressed pixels, the accumulative pixel data indicating at least an accumulative brightness of each pixel; and

comparing one or more pixels in the video image frame against the database to identify the stressed pixels.

7. The method of claim 6 further comprises accumulating pixel data in the database with regard to the identified stressed pixel based on the pixel data thereof for displaying the video image frame.

8.      A method for compensating stressed pixels on a light-emitting diode

(LED) based display device, the method comprising:

receiving a video data input for displaying a video image frame at a first

frequency;

detecting one or more pixels in the video image frame as stressed pixels;

displaying a primary sub-frame representing at least a part of the video

image frame, the primary sub-frame having one or more stressed pixels with at

least one of whose display parameters being degraded due to an accumulative

usage of the LED display device; and

displaying at least one secondary sub-frame complementing the primary

sub-frame and having the detected stressed pixels thereon with the degraded

display parameter compensated,

wherein the primary and secondary sub-frames are displayed sequentially

at a second frequency so that a viewer perceives the video image frame being

displayed without detecting the two sub-frames.


9.      The method of claim 8 wherein the primary and secondary sub-frames are

displayed with the second frequency so that an effective display frequency is

equivalent to the first frequency.

10.    The method of claim 8 further comprising determining compensation display data with regard to the degraded parameter for each of the stressed pixels.

11.    The method of claim 10 wherein the displaying the primary and secondary sub-frames further comprises:

forming the primary and secondary sub-frames based on the determined compensation data; and

determining the second frequency based on the determined compensation data.

12.    The method of claim 8 wherein the detecting further comprises comparing pixels in the video image frame against a database supplying accumulative display data for one or more stored stressed pixels, the accumulative pixel data indicating at least one display parameter has been degraded.

13.    The method of claim 12 further comprises accumulating the pixel data in the database with regard to the identified stressed pixel according to the displayed primary and secondary sub-frames.

14. The method of claim 8 wherein the degraded display parameter is a brightness level of the pixel.

15. A system for compensating stressed pixels on a light-emitting diode (LED) based display device, the system comprising:

means for receiving a video data input for displaying a video image frame at a first frequency;

means for processing information for one or more stressed pixels in the video image frame; and

means for displaying a primary sub-frame and at least one secondary sub-frame sequentially at a second frequency so that the secondary sub-frame is undetected by a viewer,

wherein the primary sub-frame has one or more stressed pixels with at least one of whose display parameters being degraded due to an accumulative usage of the LED display device, and the secondary sub-frame has the detected stressed pixels thereon with the degraded display parameter compensated.

16. The system of claim 15 wherein the primary and secondary sub-frames are displayed with the second frequency so that an effective display frequency is

equivalent to the first frequency.


17.    The system of claim 15 wherein the means for processing further

comprises means for determining compensation display data with regard to the

degraded parameter for each of the stressed pixels.


18.    The system of claim 17 wherein the means for processing further

comprises means for:

        forming the primary and secondary sub-frames based on the determined

compensation data; and

        determining the second frequency based on the determined compensation

data.


19.    The system of claim 15 wherein the means for processing further

comprises means for comparing pixels in the video image frame against a

database supplying accumulative display data for one or more stored stressed

pixels, the accumulative pixel data indicating at least one display parameter has

been degraded.


20.    The system of claim 15 wherein the means for processing is a video

processor or controller with predetermined processing algorithms embedded therein.